

In re application of:  
Tajima, et al.

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Filed: Herewith

Examiner: Unknown

For: CARRIER HOLDING MICRO-SUBSTANCES,  
SYSTEM SUSPENDING SUCH CARRIERS,  
APPARATUS FOR MANIPULATING SUCH  
CARRIERS AND METHOD OF CONTROLLING  
POSITIONS OF SUCH CARRIERS

**PRELIMINARY AMENDMENT**

Dear Sir:

Prior to the initial examination of the above-identified application, please amend the application as follows:

Page 1, before "FIELD OF INVENTION", insert the following paragraph:

--This application is a Divisional of United States Serial Number 09/202,229, filed July 26, 1999, claiming priority to International Application No. PCT/JP97/01962, filed June 9, 1997, which claims priority to Japanese Patent Application No. 8-147574, filed June 10, 1996.--

On page 7, replace paragraph 2 with the following:

Here, “holes, cavities” include in addition to dips-like in surfaces, the ones penetrating the carrier such as porous cavities which include the one such as fiber or gel. Also, “holes, cavities, concavities or convexities”, coating and so on may be not always formed in the carriers. Fixing, adsorption, adhesion, or, reaction may be done not only in the surfaces or the carrier, but also in the surfaces of the micro-substance or remote-acting substance. For

instance, the carrier may be held in holes formed in a bigger remote-acting body, and the micro-substances are held in the carrier further.

## IN THE CLAIMS

Please delete Claims 1-21 without prejudice.

### Amend the following claims:

22. (amended) A method of controlling a position of carrier holding micro-substances comprises the steps of:

pouring remote-acting bodies for positions thereof to be manipulated by a remote force, micro-substances including a target substance of an assay and so on, carriers capable of holding micro-substances and the remote-acting bodies, into a liquid, a gas or a solid in accordance with a predetermined order,

making the remote-acting bodies and the micro-substances be held in the surfaces of the carrier by agitating the suspension system,

controlling positions of the carriers holding the micro-substances and the remote-acting bodies in the surfaces thereof by applying a remote force to the remote-acting bodies.

23. (amended) A method of controlling positions of carriers holding micro-substances according to claim 22,

wherein the remote-acting bodies consist of magnetic particles, the micro-substances contain a target substance of assay and the carriers are of cellulose.

24. (amended) A method of controlling positions of carriers holding micro-substances according to claim 22, further comprising the steps of:

pouring sterilized reductive enzyme, micro-organisms such as bacteria or viruses being a target substance of an assay and so on, and sterilized cellulose-carriers in a sterilized liquid culture medium

pouring magnetic particles in the liquid culture medium,

agitating the liquid suspended by them,

controlling positions of the micro-organisms by applying or removing a magnetic field.

25. (amended) A method of controlling positions of carrier holding micro-substances according to claim 22, further comprising the steps of:  
pouring cellulose-carriers having a plurality of cavities or holes, magnetic particles, and micro-substances such as antibiotics or anticancer substances,  
agitating the liquid suspended by them,  
controlling positions of the carriers holding micro-substances and the remote-acting bodies in the surfaces thereof by applying or removing a magnetic field to or from the remote-acting bodies.

26. (amended) A method of controlling positions of carriers holding micro-substances according to claim 22, further comprising the steps of:  
pouring micro-substances being hard to be filtered, remote-acting bodies, and carriers into a liquid,  
agitating the liquid suspended by the,  
controlling so as to use the remote-acting bodies and carriers as auxiliary chemicals for filtration by applying or removing a magnetic field to the liquid.

#### REMARKS

The specification has been amended from a formal standpoint.

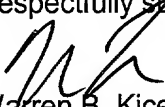
Claims 22-26 remain in the application. Claims 23-26 have been amended from a formal standpoint in accordance with the U.S. rules of practice and not for reasons relating to patentability. In formulating these amendments, the previous amendments to Claim 22 were brought forth from the Article 19 and Article 34 amendments filed in the priority grandparent application PCT/JP97/01962. The filing fee has been calculated according to the above-amendments.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "**Version With Markings to Show Changes Made.**"


Should the Examiner have any questions or comments regarding the amendments, the Examiner is invited to telephone the undersigned at the number listed below.

The Commissioner is hereby authorized to charge payment of any further fees associated with any of the papers submitted herewith or to credit any overpayment to Deposit Account No. 08-1394.

Respectfully submitted,

  
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D-973923.1

EXPRESS MAIL NO.: <u>EL828055607US</u>
DATE OF DEPOSIT: <u>December 27, 2001</u>
This paper and fee are being deposited with the U.S. Postal Service Express Mail Post Office to Addressee service under 37 CFR §1.10 on the date indicated above and is addressed to the Commissioner for Patents, Box New Application (Divisional) Washington, D.C. 20231
<b>SANDRA KUBIN</b>
Printed Name

Signature of person mailing paper and fee

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION**

On page 7, paragraph 2:

Here, "holes, cavities" include in addition to dips-like in surfaces, the ones penetrating the carrier such as porous cavities which include the one such as fiber or gel. Also, "holes, cavities, concavities or convexities", coating and so on may be not always formed in the carriers. Fixing, adsorption, adhesion, or, reaction may be done not only in the surfaces or the carrier, but also in the surfaces of the micro-substance or remote-acting substance. For instance, the carrier may be held in holes formed in a bigger remote-acting body, and the micro-substances are held in the carrier further.

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Claims 1 thru 21 canceled.

22. (amended) A method of controlling a position of carrier holding micro-substances comprises the steps of:

pouring remote-acting bodies for positions thereof to be manipulated by a remote force, micro-substances including a target substance[s] of an assay and so on, carriers capable of holding micro-substances and the remote-acting bodies, into a liquid, a gas or a solid in accordance with a predetermined order,

making the remote-acting bodies and the micro-substances be held in the surfaces of the carrier by agitating the suspension [to hold the micro-substances and the remote-acting bodies in the carriers] system,

controlling positions of the carriers holding the micro-substances and the remote-acting bodies in the surfaces thereof by applying a remote force to the remote-acting bodies.

23. (amended) A method of controlling positions of carriers holding micro-substances according to claim 22,

wherein the remote-acting bodies consist of magnetic particles, the micro-substances contain a target substance of assay and the carriers are [described in claims 2 and 12] of cellulose.

24. A method of controlling positions of carriers holding micro-substances according to claim 22, [comprises] further comprising the steps of:

pouring sterilized reductive enzyme, micro-organisms such as bacteria or viruses being a target substance of an assay and so on, and sterilized cellulose-carriers in a sterilized liquid culture medium

pouring magnetic particles in the liquid culture medium,

agitating the liquid suspended by them,

controlling positions of the micro-organisms by applying or removing a magnetic field.

25. A method of controlling positions of carrier holding micro-substances according to claim 22, [comprises] further comprising the steps of:

pouring cellulose-carriers having a plurality of cavities or holes, magnetic particles, and micro-substances such as antibiotics or anticancer substances,

agitating the liquid suspended by them,

controlling positions of the carriers holding micro-substances and the remote-acting bodies in the surfaces thereof by applying or removing a magnetic field to or from the remote-acting bodies.

26. A method of controlling positions of carriers holding micro-substances according to claim 22, [comprises] further comprising the steps of:

pouring micro-substances being hard to be filtered, remote-acting bodies, and carriers into a liquid,

agitating the liquid suspended by the,

controlling so as to use the remote-acting bodies and carriers as auxiliary chemicals for filtration by applying or removing a magnetic field to the liquid.